OPP-2003-0122

(OPP)

BY EMAIL AND FAX

Public Information and Records Integrity Branch (7502C)
Office of Pesticide Programs
Environmental Protection Agency
1200 Pennsylvania Ave., NW
Washington, DC 20460-0001

July 29, 2003

RE: Docket OPP 2003-0122
Fenthion: Notice of Receipt to Voluntarily Cancel Certain Pesticide Registrations

To whom it may concern:

The undersigned organizations strongly support the request by Bayer Environmental Science to voluntarily cancel the registrations for their products containing O-O-dimethyl O-(4methylthio)-m-tolyl) phosphorothioate (the pesticide fenthion) as a mosquito adulticide as described in the Federal Register Notice dated May 30, 2003. EPA should act expeditiously to approve the voluntary cancellation of fenthion because:

1) less toxic, equally effective alternatives exist for mosquito control and the protection of public health,
2) fenthion is being used as a routine insecticide in Florida-contrary to the recommendations of the Centers for Disease Control and Prevention and the U.S. Fish and Wildlife Service,
3) acute toxicity has been demonstrated in birds, pollinators and aquatic organisms,
4) the risks associated with fenthion are not fully understood and the toxicity testing required by EPA has not been completed,
5) fenthion used as an adulticide has been documented as the cause of wildlife mortality-including hundreds of birds in Florida,
6) its use in Florida is particularly detrimental because the Florida ecosystem acts as an important habitat for birds and other wildlife
7) current fenthion registration is in violation of both the Endangered Species Act and the Migratory Bird Treaty Act

Equally Effective Less Toxic Alternatives are Available

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At the present time, only four counties in Florida are using this highly toxic pesticide as a mosquito adulticide. Fenthion is not being used for any purpose anywhere else in the United States. All other uses and formulations of this chemical have been withdrawn from the market in part because of its toxicity to people and/or animals. There are over 3000 counties in the United States most of which have initiated mosquito control programs to protect public health, yet none of these other counties (including the other 19 counties in Florida) find it necessary to use fenthion to protect public health. Why? Because other mosquito control districts have long since determined that 1) safer, equally effective alternatives exist and 2) fenthion is simply too toxic to wildlife and the environment. In previous correspondence with the EPA we have discussed at length the highly effective alternatives that are used by other mosquito control districts. If all of the other counties in the U.S. have found ways to effectively protect their citizens from mosquitoes by using products and methods that are less environmentally damaging; there is no question that these four counties in Florida can do the same.

Routine use of fenthion in Florida is contrary to recommendations made by CDC

Mosquito Control Districts in Florida have argued vigorously to maintain the registration of fenthion citing as their primary argument the need for fenthion to be used as a "rotational" pesticide to prevent the development of pesticide resistance. At the urging of the Florida Mosquito Control, other government agencies including the CDC (letter from Dr. Duane Gubler dated March 31, 2001), USDA (letter dated March 8, 2001) and Florida Department of Environmental Protection (letter dated December 13, 1999) wrote citing the same argument as the primary reason for supporting the continued registration of fenthion. Apparently none of these agencies have reviewed the fenthion application patterns used in Florida, if they had they would know that fenthion is not being used on a rotational basis either within or among seasons. The 1998, 1999 and 2000 spray records from Marco Island (attached) show that fenthion was used each of those years (no yearly rotation occurred). Spray seasons varied, but ran from January to December. The most intense spraying occurred May through September when fenthion was sprayed over the same area on average every 2-3 days (no within season rotation occurred).

Florida's continuous and frequent use of fenthion is completely contrary to basic principles for preventing the development of pesticide resistance, including CDC's recommendations for the prevention of pesticide resistance, as described in CDC's *Guidelines for the Surveillance Prevention and Control of West Nile Virus* published in April 2001. In March of 2003 the American Bird Conservancy discussed this issue with Dr. Gubler of CDC and forwarded him a copy of the fenthion spray records. He expressed surprise at the frequency of application and the lack of rotation with other pesticides. He agreed that the current application methods are *inappropriate for preventing the development of pesticide resistance.*

Even if fenthion were used on a rotational method, it is a poor choice for the chemical

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management of resistance.Resistance to fenthion in Florida has already been documented by the Florida Medical Entomology Laboratory in *Culex nigripalpus*. The current usage patterns for fenthion in Florida, which involves frequent ULV applications at sublethal rates, increases selection pressure and encourages resistance, again this runs completely counter to goal of maintaining fenthion as an important tool for protecting public health.

The risks associated with fenthion are not fully understood and the toxicity testing required by EPA has not been completed

EPA's Interim Registration Eligibility Document (IRED) cites specific data gaps that remain regarding the toxicity of fenthion. The IRED states the need for both avian reproduction studies and neurotoxicity studies. In addition, EPA issued a Data Call In Notice to Bayer requiring acute, subacute, and developmental neurotoxicity studies to be completed by September 2001. Bayer has not initiated any of these studies. These studies are now almost two years overdue. Bayer cited its reluctance to do the required studies as one of its reasons for requesting the registration cancellation. It is appalling that Bayer has been allowed to continue to register this product while Data Call In has been ignored, particularly since safer alternatives exist. Furthermore, no other parties should be allowed to register this product in the future until all of the required studies have been completed.

Fenthion is toxic to birds

The product label for Baytex (the brand name for fenthion used in Florida) reads "This pesticide is highly toxic to shrimp, fish, and wildlife. Birds, fish, shrimp and crabs in treated areas may be killed. Do not apply where these are important resources." The label also states that the product is highly toxic to bees and other pollinators (such as butterflies).The literature, the EPA fenthion Interim Registration Eligibility Document, and various EPA memos cite documented cases of fenthion killing birds, mammals and aquatic resources when used as a mosquito adulticide. Both the EPA Interim Registration Eligibility Decision for fenthion dated January 16, 2001 and EPA staff members have stated that fenthion "poses unreasonable adverse effects to the environment". In a letter sent to EPA by the USFWS dated June 17, 2002 (attached), the FWS states its concerns regarding the toxicity of fenthion to wildlife and "*strongly recommends that fenthion not be reregistered and existing registrations should be canceled for all uses immediately*".

Mosquito abatement districts have argued that the use of Ultra Low Volume (ULV) spray technology, which reduces the droplet size of aerially applied pesticides and keeps the droplets airborne for longer periods of time, will effectively reduce the risk of fenthion exposure in birds. It has indeed been shown that the use of ULV technology may reduce the risk in some species such as fiddler crabs. Unfortunately this is not true for birds. Because birds have a unique, complex and highly sensitive respiratory system ULV increases the risk to birds because the smaller particles designed to be airborne for longer periods of time result in increased inhalation exposure. Avian inhalation models developed by Dr. Warren Porter from the University of Wisconsin and presented to EPA in 2001 show that ULV technology increases the risk of exposure. Necropsy reports

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completed by the National Forensics Laboratory in Ashland Oregon for bird carcasses collected after ULV spraying of fenthion on Marco Island state that a number of the birds had congested blood and fluid filled lungs. A finding of blood and fluid filled lungs is a highly unusual, it is however a classic sign of organophosphate respiratory exposure and toxicity. The use of ULV technology clearly did not reduce the risk to these birds and may well have played a role in their demise.

In addition, a multitude of clinical veterinary studies have clearly shown decreased droplet size leads to increased volumes of inhaled substances and increased absorbability in the avian respiratory system. Birds have physiologically and anatomically complex respiratory systems which are comprised of lungs and a series of interconnecting "air sacs". Multiple studies in veterinary medicine have evaluated the respiratory absorption of chemicals. All of these studies concluded that the key to increasing avian respiratory exposure and absorption of liquid anesthetics and other medications is 1) aerosolize the liquid with a goal of producing small droplet sizes and 2) prolong the exposure time. Both of these factors are enhanced by ULV spraying.

In addition to increasing respiratory exposure, smaller droplets that remain airborne for longer periods of time may result in unacceptable levels of fenthion deposition in nearby streams, estuaries, ponds and marshes - all prime bird habitats - because of drift during and after application. While guidelines have been established to prevent exposure to non-target organisms and habitats, a study in the Florida Keys that examined the drift of fenthion after ULV application indicates that unacceptable levels of residue were detected in no-spray zones even when properly applied.

Documented wildlife kills associated with fenthion

On twelve occasions between October 1998, and August 1999 dead and dying birds occurred after the aerial helicopter application of Baytex at a rate of 2/3 ounce of Baytex (0.05 lb ai) per acre over Marco Island, Florida. A FWS investigator observed dead and sick birds after several sprays, and concerned citizens reported others. Sprays were made over the beach early in the morning and sick and dead birds were observed on the beach within 8-10 hours. The FWS reports mortality of at least 16 bird species. All are listed migratory species protected by the Migratory Bird Treaty Act and one, a piping plover (*Charadrius melodus)* is also a federally listed endangered species protected by the Endangered Species Act. More than 200 dead or sick birds were found, and it is possible that many more were affected but never found or reported.

Samples of dead shorebirds were sent to the National Forensics Laboratory in Ashland, Oregon for analysis. Fenthion was detected on legs, feathers, beaks and/or in stomach contents. A least nine of these birds had congested blood and fluid filled lungs. As noted earlier, congested blood and fluid filled lungs, which is an extremely unusual finding in wild bird carcasses, is a classic sign of organophosphate respiratory exposure. Although some of the carcasses were decomposed and therefore not testable at least 15 birds were diagnosed by the veterinary pathologist has having died from fenthion poisoning. A review of EPA's fenthion related files reveal at least two internal memos written by Bill Erickson, one dated September 27, 2000 and another dated October 8, 2002 which indicate that EPA has seen and reviewed the

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documentation relating to these kills including the FWS necropsy reports.

Mosquito control officials in Florida have argued that fenthion is not killing birds because no visible effects on birds have been noted in the recent past. However no concentrated monitoring efforts have been carried out by the counties or the state to detect birds that are sick or dying as a result of fenthion exposure. The American Bird Conservancy and others strongly encouraged the state of Florida to initiate monitoring efforts including the testing of birds collected by Florida under its West Nile Virus monitoring program for exposure to fenthion. In fall 2002, a conference call was held with officials from the Florida's Departments of Agriculture and Public Health to discuss the details of such testing. At the conclusion of that call Florida officials stated that they would develop testing protocols for fenthion exposure to be utilized for dead birds collected for the West Nile virus monitoring program. To our knowledge, no such program was ever initiated.

It is well established through scientific studies that wildlife mortalities due to pesticides are extremely difficult to detect even when experienced searchers are involved in the monitoring efforts, if no monitoring system is in place its even less likely that carcasses will be detected. Not only are wildlife carcasses readily scavenged, but multiple scientific studies show that birds affected by pesticides take cover and hide in an attempt to avoid being preyed upon. Birds that are exposed to fenthion do not "drop out of the sky" immediately after exposure, rather it takes hours or even days for birds to die. Exposed birds become neurologically impaired and seek cover making it extremely difficult to find carcasses. Attached is list of scientific studies that illustrate the impact of pesticides on bird behavior and the difficulty of finding pesticide poisoned wildlife carcasses.

Importance of Florida's ecosystem to birds and other wildlife

Florida is characterized by a variety of aquatic ecosystems virtually unequalled in North America. Fenthion is highly toxic to aquatic invertebrates; both the diversity and numbers of aquatic organisms will be reduced with continued use.Florida ecosystems are critical to the maintenance of healthy populations of vast numbers of resident and migratory birds. Two-thirds of the breeding bird species of eastern United States forests migrate to tropical wintering areas. The Gulf Coast of Florida, in particular, is important as a stopover for large numbers of birds after crossing the Gulf of Mexico in spring. The peak of the trans-Gulf migration, mid-May, overlaps with the mosquito-spraying season. Migrants may be exposed to fenthion in Florida twice in the same year when they again pass through Florida on their return trip to the tropics in September and October. Resident birds of Florida may be repeatedly exposed to fenthion due to multiple applications for mosquito control. A number of bird species that are of particular concern reside in the areas of Florida where fenthion spraying routinely occurs including:

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Birds listed as Endangered by both the USFWS and the State of Florida:

Wood Stork *(Mycteria Americana)*

Cape Sable seaside sparrow *(Ammodramus maritimus mirabilis)*

Birds listed as Threatened by both the USFWS and Florida:

Florida Scrub-Jay *(Aphelocoma coerulescens)*

**Piping Plover *(Charadrius melodus)*

Bald Eagle *(Haliaeetus leucocephalus)*

Birds listed as Species of Special Concern by the State of Florida:

Roseate Spoonbill *(Ajaia ajaja)*

**Black Skimmer *(Rynchops niger)*

Limpkin *(Aramus guarauna)*

Little Blue Heron *(Egretta caerulea)*

Reddish Egret *(Egretta rufescens)*

Snowy Egret *(Egretta thula)*

Tricolored Heron *(Egretta tricolor)*

White Ibis *(Eudocimus albus)*

American Oystercatcher *(Haematopus palliates)*

Brown Pelican *(Pelecanus occidentalis)*

Birds listed as Threatened by the State of Florida:

White-Crowned Pigeon *(Columba leucocephala)*

Least Tern *(Sterna antillarum)*

Southeastern Snowy Plover *(Charadrius alexandrinus tenuirostris)*

** Carcasses from these species were among those diagnosed by the National Forensics Laboratory as having died from fenthion poisoning after ULV spraying on Marco Island

Current fenthion registration is in violation of both the Endangered Species Act and the Migratory Bird Treaty Act

EPA's continued registration of fenthion is currently in violation of the both the Endangered Species Act (ESA) and the Migratory Bird Treaty Act (MBTA). The FWS necropsy reports provide definitive evidence that fenthion negatively impacts species that are protected by both Acts. Killing of birds as a result of fenthion application results in unlawful take of protected species. EPA is fully aware that protected species are being adversely affected yet the Agency has not fulfilled its legal obligation to consult with U.S. Fish and Wildlife Service as specifically required under section 7 of the ESA.

We urge the EPA to expeditiously move forward with the voluntary cancellation of fenthion. There is no question that public health can be effectively protected with safer, less toxic alternatives. Given the inevitability of bird mortality associated with fenthion use, the sensitivity of Florida ecosystems, and the importance of Florida's ecosystems for resident and migratory birds, the use of fenthion for mosquito control is simply not acceptable. The use of fenthion comes at too high at cost to Florida's residents, its wildlife and the environment. We appreciate the opportunity to provide comment on this important issue.

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Sincerely,

Patricia R. Bright, MS, DVM
Dipl. Amer.College of Veterinary Preventive Medicine.
Director, Pesticides and Birds
American Bird Conservancy
The Plains, Virginia

Karena Anderson, JD
Wildlife Counsel
Defenders of Wildlife
Washington, DC

Manley Fuller
President
Florida Wildlife Federation
Naples, Florida

ENCLOSURES:

Fenthion Spray Records from Marco Island Florida from 1998-2000
Letter to EPA from USFWS dated June 17, 2002
Wildlife Mortality References

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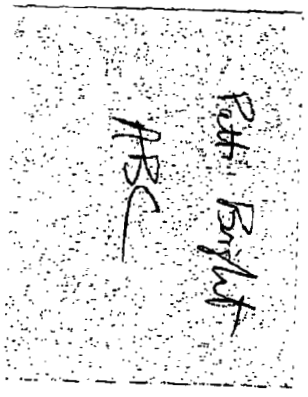
BAYTEX HELICOPTER ACTIVITY REPORT
MARCO ISLAND



1998
March 2
March 7
March 21
April 4
April 9
April 11
May 10
June 5
June 8
June 10
June 13
June 21
June 24
June 27
July 1
July 4
July 7
July 11
July 15
July 18
July 21
July 23
July 25
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1999
Jan 27
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Feb 4
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March 20
March 27
April 3
April 27
May 1
May 5
May 7
May 15
May 22
May 24
May 26
May 29
June 1
June 3
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June 7
June 9
June 11
June 13
June 15
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June 22
June 25
July 2
July 4
July 8
July 11
July 14
July 17
July 21
July 24
July 28
Aug 14
Aug 17
Aug 21
Aug 25

Total Applications 41

2000
June 10
June 13
June 17
June 24
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July 2
July 4
July 7
July 9
July 12
July 15
July 18
July 20
July 23
July 26
July 29
Aug 2
Aug 5
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Aug 14
Aug 16
Aug 19
Aug 26
Aug 30
Sept 1
Sept 3
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Sept 8
Sept 10
Sept 13
Sept 16
Sept 20
Sept 23
Sept 27
Oct 1
Oct 17
Dec 9

Total Applications 38

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 20240

ADDRESS ONLY TO THE DIRECTOR
FISH AND WILDLIFE SERVICE

In Reply Refer To:
FWS/AFHC/DEQ

JUN 17 2002

Ms. Lois A. Rossi
Director
Special Review and Reregistration Division
U.S. Environmental Protection Agency
Washington, D.C. 20460

Dear Ms. Rossi:

This letter transmits the comments of the U.S. Fish and Wildlife Service regarding the reregistration of the organophosphate pesticide, fenthion (O,O-dimethyl O-(4-(methylthio)-m-tolyl) phosphorothioate). Our comments are submitted in accordance with the Fish and Wildlife Coordination Act, Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, Endangered Species Act, Federal Insecticide, Fungicide and Rodenticide Act, and Food Quality Protection Act.

Based on our review of the Interim Reregistration Eligibility Decision for fenthion dated January 16, 2001, the Service concurs with EPA's determination that, ". . . currently registered uses of fenthion pose unreasonable adverse effects to . . . the environment and that mitigation measures are necessary." In addition, we find that:

- Fenthion is an avicide in several formulations including Baytex.
- Fenthion negatively impacts federally listed endangered species and migratory birds.
- Fenthion is highly toxic to many aquatic invertebrates.
- Fenthion is toxic to non-target beneficial insects.
- Chronic risks for fenthion are not understood and chronic toxicity testing has not been completed.
- Fenthion is unnecessary for adult mosquito control because other equally efficacious products are available.

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- The proposed mitigation strategies are inadequate to mitigate the adverse environmental effects of fenthion.
- Without adequate mitigation, the Service strongly believes that fenthion should not be registered and the current registration should be canceled.

It is clear from experience that fenthion is toxic to non-target organisms, both aquatic and terrestrial, including all birds, even when applied as Baytex at the lowest end of the labeled ultra-low volume rate. Arguments that the incidents reported in the literature were the result of improper application are possible, but it is unlikely that mistakes occurred in every reported bird kill.

The use of fenthion without significant environmental impacts seems to be impossible given the current application instructions. The mitigation that has been suggested by the EPA's January 2001, IRED is inadequate to eliminate or significantly reduce these impacts. The Service strongly recommends that fenthion not be reregistered and existing registrations should be canceled for all uses immediately.

The Service would consider the reregistration of fenthion if: (1) additional scientific studies were performed to reduce the uncertainties regarding fenthion effects on biota, and, (2) detailed mitigation strategies were adopted. However, until these studies and mitigation approaches are agreed upon, the registration and use of fenthion should be suspended. Suggested studies and mitigation approaches, along with detailed technical comments, are enclosed which outline the reasoning behind these conclusions. If you have any questions, or require any additional information, please contact Everett Wilson, Chief, Division of Environmental Quality.

Sincerely,

DIRECTOR

Enclosure

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ATTACHMENT C
Wildlife Mortality References

Smith GJ. Pesticide use and toxicology in relation to wildlife: organophosphorus and carbamate compounds. USFWS Resource Publication No. 170. Washington: US Fish & Wildlife Services, 1987.

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Fryday SL, Hart ADM, Langton SD. Effects of exposure to an organophosphorus pesticide on the behavior and use of cover by captive starlings. Environ Toxicol Chem 15:1590-1596 (1996).

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